

Proposal  
Environmental Site Investigation  
Former Oakland Tribune Garage  
Oakland, California  
For Morrison & Foerster

May 12, 1989

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**DAMES & MOORE**

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Environmental Site Investigation  
Former Oakland Tribune Garage  
Oakland, California  
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May 12, 1989

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# Dames & Moore



BS/5632b



**DAMES & MOORE**

A PROFESSIONAL CORPORATION

225 MAIN STREET, SUITE 600, SAN FRANCISCO, CALIFORNIA 94105-1911 415.774.6545

May 12, 1989

Morrison & Foerster  
345 California Street  
San Francisco, California 94104-2675

Attention: Ms. Tomme R. Young

Proposal  
Environmental Consulting Services  
Oakland Tribune Garage  
23rd and Valdez  
Oakland, CA

Dear Ms. Young:

Dames & Moore is pleased to submit this proposal to provide environmental consulting services for your client, the Oakland Tribune, with respect to their property located at 23rd and Valdez in Oakland ("the site"). Our proposal is based upon information regarding the site provided to Dames & Moore by Morrison & Foerster including several technical reports and proposals prepared by Kleinfelder & Associates and Clayton Environmental Consultants, Inc.

Previous environmental investigations performed at the site identified several potential onsite environmental concerns including two underground storage tanks and a floor drain presumably used to drain

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May 12, 1989  
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fluids from the service bays of the former garage. The results of soil and groundwater sampling performed at the site indicate that soils and groundwater at the site contain significant concentrations of petroleum hydrocarbons and chlorinated hydrocarbons.

We understand that the Oakland Tribune intends to sell the property and is concerned with the nature and extent of site contamination, potential offsite contamination, and the potential impact of site contamination on the value and resale of the property. To address these concerns, Dames & Moore proposes to conduct an additional site investigation. The details of our proposed investigation are presented in the attached proposal. Similar to the approach presented by Clayton Environmental in their April 19, 1989 proposal, Dames & Moore proposes to conduct the investigation in a phased approach. The first phase of the investigation would focus on characterizing the nature and extent of onsite site and groundwater contamination. A second phase, if necessary, would focus on characterizing any offsite contamination resulting from migration of hazardous chemicals present on the site. Based on the results of previous investigations and the proposed investigation(s), Dames & Moore would recommend remedial measures appropriate to address site contamination, if necessary.

We are confident that the experience, qualifications, and expertise Dames & Moore can bring to this project will insure that the subsurface investigation and development of remedial strategies will proceed in a timely and cost-effective manner.

To authorize our services and to accept our liability provisions, please sign the "Authorization to Proceed" form at the end of this letter. If your client desires liability limits which are higher than the  
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standard limits set forth in the attached General Conditions, they can be provided for an additional fee. Please inform us accordingly of your liability limits requirements. If you authorize our services without requesting higher limits, the standard liability limits shall apply and be binding.

If you have any questions concerning our proposal or wish to discuss alternative approaches, please contact us at (415) 896- 5858. We look forward to working with you on this project.

Very truly yours,

**DAMES & MOORE**

A handwritten signature in cursive script that reads "David M. Klimberg".

David M. Klimberg  
Associate

A handwritten signature in cursive script that reads "Bruce Scarbrough".

Bruce Scarbrough  
Project Geologist

Two copies submitted  
Attachments

Morrison & Foerster  
May 12, 1989  
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AUTHORIZATION TO PROCEED:

By: \_\_\_\_\_  
(Signed)\* (Printed)

For: \_\_\_\_\_  
(Company)\* (Date)

\* Individual with authority and company responsible for payment of Dames & Moore's services.

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PROPOSAL  
Environmental Site Investigation  
Oakland Tribune Garage  
Oakland, California

1.0 INTRODUCTION

1.1 BACKGROUND

The property located at 2302 Valdez Street in Oakland, California is currently owned by the Oakland Tribune, and was formerly used as a garage and service and maintenance facility for Oakland Tribune vehicles. The site contains a single 120 foot by 110 foot building, and two asphalt paved parking lots located on the north side of the building.

A Preliminary Environmental Site Assessment (PSA) was conducted by Kleinfelder & Associates in July 1987. The PSA included the collection and analysis of soil samples from several onsite areas identified by Kleinfelder as potential environmental concerns. The primary areas of concern identified by Kleinfelder included a 8,000 gallon underground gasoline tank, a 750 gallon underground waste oil tank, a floor drain/sump within the building and a gasoline pump within the building. Chemical results of soil samples collected during the PSA showed concentrations of 6500 ppm total petroleum hydrocarbons (TPH) and 5400 ppm oil and grease present in the vicinity of the floor drain. Chemical results of soil samples collected in the vicinity of the underground storage tanks indicated no significant contamination; however strong odors were noted while drilling in the vicinity of the tanks.

On February 23, 1988, Clayton Environmental Consultants (Clayton) removed the two underground storage tanks from the site. During removal, visible soil contamination was observed and soil samples were collected from beneath both tanks. Results of the soil samples showed significant levels of petroleum hydrocarbons and oil and grease. Approximately 30 cubic yards of contaminated soil was excavated from beneath the tanks and aerated onsite to remove the



volatile contaminants. In addition, approximately 30 cubic yards of soil was excavated from beneath the underground floor drain inside the building. The excavation was terminated at a depth of 15 feet because groundwater was encountered. Soil samples collected near the base of the excavation indicated that significant concentrations of TPH and oil and grease were present in the soils.

Shallow groundwater at the site is reported to occur at depths ranging from 15 to 20 feet below the ground surface and flow in a southwesterly direction. Three onsite groundwater monitoring wells were installed and sampled by Clayton in August 1988. Analytical results of the groundwater samples indicate that groundwater underlying the site contains concentrations of benzene and toluene above the California Department of Health Services (DHS) Action Level of 0.7 and 100 ppb, respectively. In addition, ethylbenzene, xylenes, chlorobenzene and dichlorobenzenes were detected above the method detection limits but at concentrations below the DHS Action Levels.

Based on the results of the previous investigations, Clayton has recommended performing additional site characterization work which includes the following tasks:

- Resampling of the three existing monitoring wells and establishing a quarterly sampling plan;
- Drilling of 12 onsite soil borings and the collection and analysis of soil samples;
- Installation and sampling of an additional three to five onsite groundwater monitoring wells;
- Slug testing of monitoring wells; and
- Site history study.

Pending the results of the additional onsite investigation, Clayton recommends the installation of offsite monitoring wells to evaluate potential offsite migration of site contaminants.

Based on our review of the information provided to us and our current understanding of the site conditions, we believe the general technical approach and scope of work presented by Clayton in their Work Plan for Further Site Characterization dated April 19, 1989 is appropriate. Section 2.0 of this proposal presents a similar scope of work and a brief description of the procedures Dames & Moore would follow during implementation of each task.

## 1.2 OBJECTIVES

Based on our discussions with Morrison and Foerster and our review of the existing data, the primary objectives of the proposed additional site investigation are the following:

- Evaluate the potential for migration of contaminants from offsite sources onto the Oakland Tribune property;
- Further evaluate the extent of onsite soil and groundwater contamination identified in the previous investigations; and
- Evaluate the extent of offsite groundwater contamination, if any, resulting from the migration of contaminants from the site.

## 2.0 PROPOSED SCOPE OF WORK

To achieve the above objectives, we propose an investigation and technical approach consisting of the following tasks:

### 2.1 PHASE I ONSITE INVESTIGATION

- Task 1- Site Visit
- Task 2- Preliminary Field Investigation Activities
- Task 3- Historical Site Assessment
- Task 4- Onsite Field Investigation Program

Subtask 4.1 - Resampling and Analysis of Existing Wells

Subtask 4.2 - Soil Sampling and Analysis

Subtask 4.3 - Installation, Sampling and Analysis of  
Additional Onsite Monitoring Wells

Subtask 4.4 - Aquifer Testing

Subtask 4.5 - Waste Disposal

- Task 5- Data Analysis and Report Preparation

A brief description of the procedures for each of the following tasks is presented below.

### TASK 1 - Site Visit

A site visit will be conducted by the Dames & Moore project manager and field supervisor to verify site conditions as described in the previous reports. The site visit will also allow the project manager and field supervisor to locate and mark proposed, soil boring, and monitoring well locations. The locations will be measured and recorded in a field notebook for later reference.

### TASK 2 - Preliminary Field Activities

After completion of the site visit, the proposed soil boring, and monitoring well locations will be cleared with Underground Service (USA), the property owners and/or managers, and other groups or individuals knowledgeable about on-site underground lines or buried objects.

In addition, proper excavation, soil boring, and monitoring well installation permits will be obtained, if necessary, from the County of Alameda, the California Department of Water Resources (DWR), or other appropriate agency.

Prior to initiation of field activities, a Health and Safety Plan (HSP) will be developed for use by all Dames & Moore personnel. All Dames & Moore project field personnel will be required to read the HSP and to sign the authorization form included at the end of the HSP prior to beginning field work.

### TASK 3 - Historical Site Assessment

Dames & Moore will review existing available information regarding historical land use of the site and site vicinity in an effort to identify previous onsite or near site operations which may have impacted the Tribune property. This task will include the review of historical aerial photographs.

public records maintained by the City of Oakland and Alameda County, and interviews with people knowledgeable about the site development history.

#### TASK 4.0 - Field Investigation

##### Subtask 4.1 - Resampling and Analysis of Existing Wells

To confirm the presence of chemicals in the shallow groundwater underlying the site, Dames & Moore will sample and analyze the three existing monitoring wells (MW-1, MW-2, and MW- 3) as soon as possible. Prior to sampling, a minimum of five casing volumes of water will be removed from each well, and temperature, pH, and conductivity measurements will be collected and recorded to ensure the collection of a representative sample. Groundwater samples will be collected utilizing a dedicated pre-cleaned polyethylene bailer. Groundwater samples will be collected into properly labeled sample containers, placed in an ice-filled cooler and transported via courier to Acculab Environmental Services of Petaluma, California, a state certified hazardous waste laboratory. Each sample shipment will be accompanied with a chain-of-custody form.

Samples will be analyzed by Acculab using the following EPA Methods:

- Purgeable Halocarbons (EPA Method 601)
- Purgeable Aromatics (EPA Method 602)
- Total Petroleum Hydrocarbons (EPA Method 8015)
- Oil and Grease (EPA Method 503E)

##### Subtask 4.2 - Soil Sampling and Analysis

To further characterize the lateral and vertical extent of onsite soil contamination, Dames & Moore proposes to install 12 soil borings at locations shown on Plate 1. As discussed in Clayton's April 19 Work Plan, several of

these locations are tentative and may be relocated if demolition of the garage was complete prior to initiating the investigation

Borings will be sampled at 5-foot intervals (beginning at 1 foot below ground surface), or whenever a distinct lithologic change is encountered using a Dames & Moore U Type sampler fitted with clean 3-inch by 2.5-inch diameter stainless steel sleeves. Each boring will be advanced by hollow stem auger methods until groundwater is encountered.

Soil samples will be screened in the field for the presence of volatile hydrocarbons using a PID meter. In addition, soil samples will also be screened in the field for semi-volatile and non-volatile hydrocarbons using a rapid analytical method known as thin-layer chromatography (TLC). Based on the results of the field screening analysis, a minimum of two samples from each borehole will be submitted for chemical analysis. Samples selected for analysis will be labeled, placed in an ice-filled cooler, and delivered to Acculab following proper chain-of-custody protocol.

All samples submitted to Acculab will be analyzed for the following parameters:

- Total Petroleum Hydrocarbons <sup>Gasoline</sup> (EPA Method 8015)
  - Oil and Grease (EPA Method 503E)
- ~~ETP SX~~

Based on the results of the oil and grease analyses, two soil samples with the highest oil and grease concentrations will also be analyzed for the following additional parameters:

- CAM Metals (Total)
- PCBs (EPA Method 8080)
- Semi-Volatile Organics (EPA Method 8270)

### Subtask 4.3 - Installation, Sampling and Analysis of Additional Monitoring Wells

Four of the soil borings will be completed as groundwater monitoring wells at locations shown on Plate 1. The wells will be constructed of 4-inch diameter, Schedule 40 PVC casing with threaded joints and 0.020-inch PVC slotted screen. Monitoring wells will be screened five feet above the water table to allow detection of floating product and to accommodate possible future water level fluctuations. The wells will be completed slightly above grade with locking covers, and steel, traffic-rated Christy boxes. Upon completion, monitoring wells will be developed to remove fines by means of pumping or bailing.

Groundwater samples from the newly installed wells will be collected following the procedures described in Section 2.4.1. All samples will be delivered to Acculab for the following parameters:

- Purgeable Halocarbons (EPA Method 601)
- Purgeable Aromatics (EPA Method 602)
- Total Petroleum Hydrocarbons (EPA Method 8015)
- Oil and Grease (EPA Method 503E)

### Subtask 4.4 - Aquifer Testing

Aquifer tests will be conducted on the water table zone to assess aquifer hydraulic conductivity and other parameters over the site area that may influence the migration of chemicals of concern present in the shallow groundwater system. The aquifer tests will consist of slug testing of all onsite monitoring wells.

#### Subtask 4.5 - Waste Disposal

The drill cuttings, purge and development water generated during the described field activities will require appropriate handling and disposal. To accomplish this goal, we propose onsite storage of the generated wastes in labeled 55-gallon drums until chemical analyses of the given waste are completed and evaluated.

Based upon the chemical results and in consultation with a qualified hazardous waste hauler, a program for disposal of the waste materials will be presented to the Oakland Tribune for approval. If necessary, we will recommend performance of additional sampling and analysis prior to disposal. The waste materials will then be removed from the site and disposed of appropriately.

#### TASK 5 - Data Analysis and Report Preparation

The field data, chemical testing results, and other appropriate data generated during the Phase I activities will be analyzed by Dames & Moore personnel. A report describing investigation methods, results, conclusions and recommendations for Phase II work, if necessary, will be prepared and submitted for your review.

#### 2.2 PHASE II - OFFSITE INVESTIGATION

Based on the findings of the Phase I investigation, it may be necessary to perform an offsite investigation designed to evaluate the extent, if any, of contamination that has migrated from the site. It is likely that a Phase II investigation would focus on groundwater contamination, and require the installation of offsite monitoring wells. For the purpose of this proposal, Dames & Moore has not included a scope of work or fee estimate for the Phase II investigation because of the uncertainty of the need to expand the investigation offsite.



### 2.3 PHASE III- DEVELOPMENT OF A REMEDIAL ACTION PLAN

Following the conclusion of the Phase I and Phase II investigations, Dames & Moore will develop a site-specific remedial action plan (RAP). The RAP will include an evaluation of applicable remedial technologies available for addressing soil and/or groundwater contamination identified at the site. If further soil remediation is required, potential remedial alternatives include in situ bioremediation, excavation and onsite bioremediation, and excavation and offsite disposal. If groundwater remediation is required, groundwater extraction using existing wells and onsite treatment of the groundwater with granular activated carbon is likely.

### 3.0 SCHEDULE

We understand that the Oakland Tribune would like to initiate the Phase I investigation activities as soon possible. Dames & Moore is prepared to begin work immediately on the Phase I tasks following authorization to proceed. We anticipate that the Phase I project tasks, excluding waste disposal, will require approximately 8 to 9 weeks to complete.

A schedule for any subsequent work will depend upon the outcome of the Phase I investigation, and, if necessary, will be developed following completion of the described services.

### 4.0 ESTIMATED FEES

We propose to implement the Phase I investigation described in Section 2.0 on a time and expense basis in accordance with our Schedule of Charges and General Conditions, as attached in Appendix A. Our estimated fees for the Phase I investigation are \$45,200. A breakdown of costs by project task is presented in Table 1. Please note that a fee estimate for waste disposal has not been included in this proposal due to the uncertainty of the type, volume, and chemical composition of the waste(s) to dispose.

## 5.0 EXPERIENCE

As an multi-disciplinary environmental engineering firm with 50 years of experience, Dames & Moore is recognized as a leader in the field of hazardous waste management. During the last five years, the firm has performed or is currently working on more than 500 waste management projects. Dames & Moore has experience in all aspects of hazardous waste management and remediation. Descriptions of more recent, relevant projects are contained in Appendix B.

## 6.0 PROJECT TEAM

Dames & Moore anticipates that our project team will be headed by Mr. David Klimberg, Associate and Manager of Dames & Moore's Northern California Geosciences group. Mr. Bruce Scarbrough, Project Geologist, will act as Project Manager, while Cheng-Hsien Lai, Project Hydrogeologist, will assist in the site characterization aspects of the project. Mr. Eric Terhorst, Project Chemical Engineer will be responsible for evaluating various remedial alternatives for the site. Plate 2 presents key personnel for this project. Pertinent information concerning key individuals is given below and curriculum vitae are presented in Appendix C.

### Project Director - David Klimberg

Mr. Klimberg is the manager of the Northern California Geoscience and Waste Management Group. Mr. Klimberg is a California Registered Geologist with over nine years' experience in hazardous waste management, hydrogeology, remedial planning, and environmental regulatory analysis. He has managed numerous hazardous waste projects, including remedial investigations and feasibility studies (RI/PS) and remedial action planning and implementation for federal and state Superfund sites. Prior to joining Dames & Moore, Mr. Klimberg was an Engineering Supervisor for Bechtel National, Inc., where he

managed site contamination investigations and developed facility-specific hazardous waste and materials management plans.

Project Manager - Bruce Scarbrough

Mr. Scarbrough has a B.S. and M.S. in geology and has four years of experience in the hazardous waste management field. Since joining Dames & Moore in 1986, he has managed several site characterization projects involving evaluation of soil and groundwater contamination. He has also successfully managed two state Superfund projects which included remedial investigations and feasibility studies (RI/FS) and the development of remedial action plans (RAPs). Mr. Scarbrough will act as project manager and also task leader for subsurface characterization and analysis of environmental chemistry data.

Project Hydrogeologist - Cheng-Hsien Lai

Mr. Lai has a Ph.D. in Geohydrology and has more than eight years experience in groundwater flow analysis and investigations of chemical contamination of groundwater systems. He has designed and conducted numerous hydrogeologic assessment programs which included installation of monitoring wells, aquifer tests, and assessing groundwater flow and contaminant transport pathways. Additionally, Mr. Lai has extensive experience in computer based groundwater modeling. Mr. Lai will be task leader for hydrogeologic site characterization and contaminant transport analysis.

Project Chemical Engineer - Eric Terhorst

Mr. Terhorst received his B.S. in Chemistry and Environmental Engineering and M.S. in Chemical Engineering. His experience includes three years with Xidex Corporation in Sunnyvale and Santa Clara, where he managed all aspects of environmental affairs, including remediation of solvent-contaminated groundwater and soil, hazardous material and waste management, and air quality permitting. Mr. Terhorst will be task leader for development of any proposed remedial strategy.

**TABLE 1  
FEE ESTIMATE FOR  
PHASE I ENVIRONMENTAL INVESTIGATION  
FORMER OAKLAND TRIBUNE GARAGE  
OAKLAND, CALIFORNIA**

**TASK 1- SITE VISIT**

Dames & Moore Labor	\$400
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**TASK 2- PRELIMINARY FIELD ACTIVITIES**

(Utility Clearance, Permits, Health  
and Safety Plan)

Dames & Moore Labor	\$1300
Permits	<u>\$100</u>
<b>SUBTOTAL TASK 2</b>	<b>\$1400</b>

**TASK 3- HISTORICAL SITE ASSESSMENT**

Dames & Moore Labor	\$900
Materiels	<u>\$200</u>
<b>SUBTOTAL TASK 3</b>	<b>\$1100</b>

**TASK 4- FIELD INVESTIGATION**

**SUBTASK 4.1- WELL RESAMPLING**

Dames & Moore Labor	\$1000
Equipment and Matereils	\$500
Laboratory Analysis (3 samples plus trip blank)	\$1400

**SUBTASK 4.2 AND 4.3- SOIL SAMPLING AND WELL  
INSTALLATION INCLUDING  
ANALYSIS**

Dames & Moore Labor	\$6000
Equipment	\$1800

**DRILLING SUBCONTRACTOR**

Labor	\$8300
Equipment and Materiels	\$6300

BRUCE  
SCARBOROUGH

TABLE 1 (continued)

ANALYTICAL LABORATORY	
Soil Samples (estimate 40 samples)	\$8500
Water Samples (including one field and one trip blank)	\$2300
SUBTASK 4.4 - AQUIFER TESTING	
Dames & Moore Labor	\$1300
Equipment	<u>\$200</u>
SUBTOTAL TASK 4	\$36,800
<u>TASK 5- DATA ANALYSIS AND REPORT PREPARATION</u>	
Dames & Moore Labor	\$5000
Miscellaneous Equipment and Supplies	<u>\$200</u>
SUBTOTAL TASK 5	<u>\$5200</u>
PROJECT MANAGEMENT	\$1000
<u>TOTAL PHASE I FEE ESTIMATE</u>	<u>\$45,200</u>

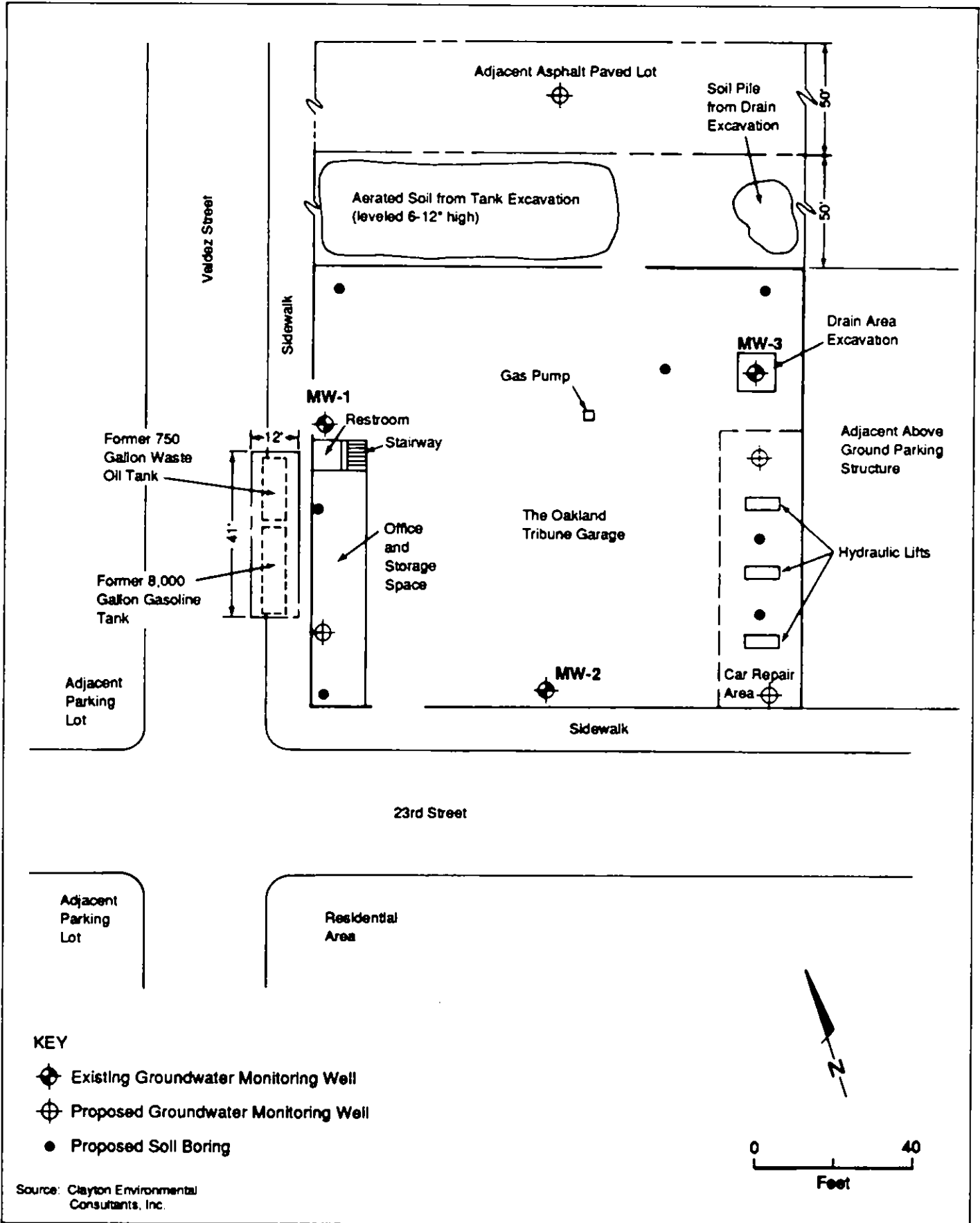
Notes:

- 1) Assumes installation of 4 monitoring wells to depth of 30 feet.
- 2) Assumes analysis of 40 soil samples.
- 3) Assumes analysis of one field and one trip blank for each water sampling episode.
- 4) Assumes normal three week turnaround time for lab analysis.

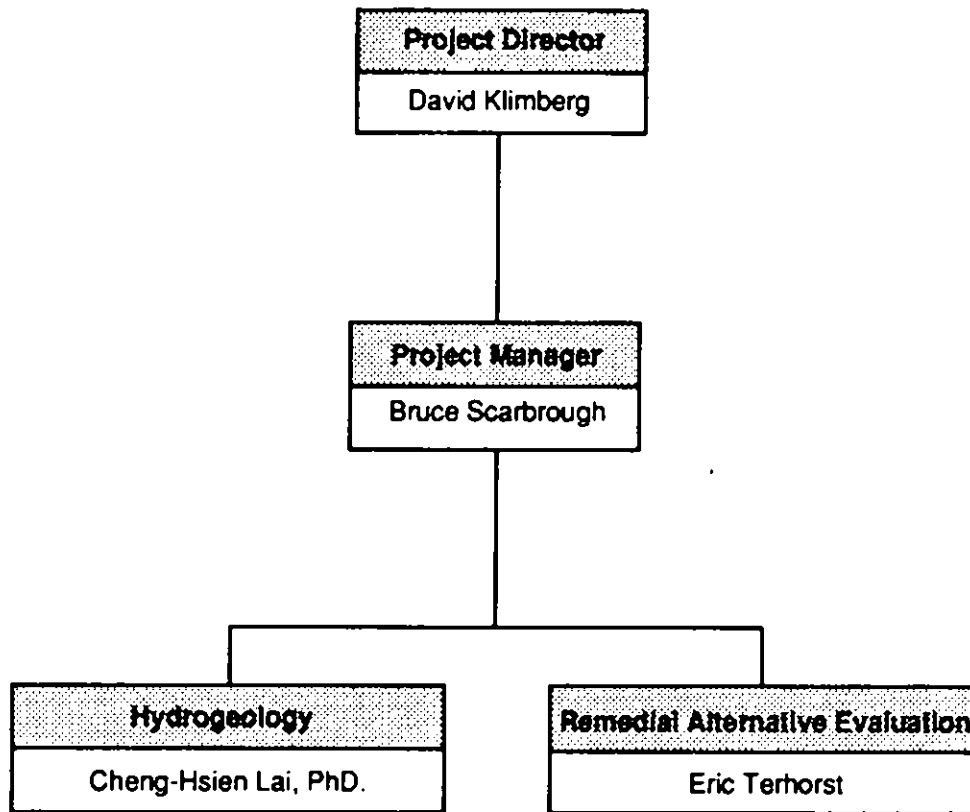
1 - Well wd be cheaper in long run.  
2 - Well costs are high b/c of  
3 - Analytical costs

Add'l Well w/ <sup>\$1000</sup> ~~\$500~~ ~~\$600~~ sampling

NO CHANGES OF SCOPE OR HIDDEN CONDITIONS  
THAT MAKE INST'U HARDER



8735-043	Oakland Tribune	<b>PROPOSED SOIL AND GROUNDWATER SAMPLING LOCATIONS</b>
<b>Dames &amp; Moore</b>	OAKLAND TRIBUNE GARAGE Oakland, California	



8735-043	Oakland Tribune	<b>PROJECT TEAM</b>
<b>Dames &amp; Moore</b>	OAKLAND TRIBUNE GARAGE Oakland, California	



## GENERAL CONDITIONS—FORM A

### 1.0 BILLING

- 1.1 Invoices will be issued every four weeks, payable upon receipt, unless otherwise agreed.
- 1.2 Interest of 1½% per month (but not exceeding the maximum rate allowable by law) will be payable on any amounts not paid within 30 days, payment thereafter to be applied first to accrued interest and then to the principal unpaid amount. Any attorney's fees or other costs incurred in collecting any delinquent amount shall be paid by the Client.
- 1.3 In the event that the Client requests termination of the work prior to completion of a report, Dames & Moore reserves the right to complete such analyses and records as are necessary to place its files in order and, where considered by it necessary to protect its professional reputation, to complete a report on the work performed to date. A termination charge to cover the cost thereof in an amount not to exceed 30% of all charges incurred up to the date of the stoppage of the work may, at the discretion of Dames & Moore, be made.

### 2.0 WARRANTY AND LIABILITY

- 2.1 Dames & Moore warrants that its services are performed, within the limits prescribed by its Clients, with the usual thoroughness and competence of the consulting profession, in accordance with the standard for professional services at the time those services are rendered. No other warranty or representation, either expressed or implied, is included or intended in its proposals, contracts, or reports.
- 2.2 Dames & Moore's liability shall be limited to injury or loss caused by the negligence of Dames & Moore, its subcontractors, and/or agents hereunder. Dames & Moore has neither created nor contributed to the creation or existence of any hazardous, radioactive, toxic, irritant, pollutant, or otherwise dangerous substance or condition at the site, and its compensation hereunder is in no way commensurate with the potential risk of injury or loss that may be caused by exposures to such substances or conditions.
- 2.3 Dames & Moore's liability for injury or loss arising from (1) professional errors or omissions and/or (2) radiation, nuclear reaction, or radioactive substances or conditions; and/or (3) any other toxic, irritant, pollutant, or waste gases, liquids, or solid materials shall not exceed \$100,000.
- 2.4 Dames & Moore's comprehensive general and automobile liability shall not exceed \$500,000.
- 2.5 Increased liability limits may be negotiated upon client's written request, prior to commencement of services, and agreement to pay an additional fee.
- 2.6 The Client agrees to defend, indemnify, and hold Dames & Moore harmless from any claim, liability, or defense cost in excess of the limits determined above for injury or loss sustained by any party from exposures allegedly caused by Dames & Moore's performance of services hereunder.
- 2.7 In the event the Client makes a claim against Dames & Moore, at law or otherwise, for any alleged error, omission or other act arising out of the performance of its professional services, and to the extent the Client fails to prove such claim, then the Client shall pay all costs, including attorney's fees, incurred by Dames & Moore in defending itself against the claim.

### 3.0 AUTHORIZED LIMITS OF LIABILITY

3.1 Client authorization to proceed without execution of this section indicates acceptance of the standard terms and conditions described above in 2.0. Fees for limits of liability selected below shall be payable upon authorization to proceed, and every 12 months thereafter (subject to annual adjustment) until final payment for services under this authorization has been received.

3.2 Type of Liability	Reference	Liability Limit	Annual Fee
Professional Liability	2.3(1)	\$ _____	\$ _____
Nuclear Liability	2.3(2)	\$100,000	\$ —0—
Non-nuclear Seepage and Pollution Liability (Environmental Impairment)	2.3(3)	\$ _____	\$ _____
Comprehensive General and Automobile Liability	2.4	\$ _____	\$ _____

Client Name: \_\_\_\_\_

DAMES & MOORE

Client Address: \_\_\_\_\_

Signed By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Dames & Moore Job No./Description \_\_\_\_\_



## **SCHEDULE OF CHARGES UNITED STATES**

The compensation to Dames & Moore for our professional services is based upon and measured by the following elements, which are computed as set forth below.

### **1.0 PERSONNEL CHARGES**

**1.1** Charges for employees are computed by multiplying the total direct salary cost of our personnel (expressed as an hourly rate) by a factor of 2.5. The total direct salary cost shall be a sum equal to the direct payroll cost (computed by dividing the annual payroll cost by 1,940 hours) plus 40 percent of same to cover payroll taxes, insurance incident to employment, sick leave and other employee benefits. The time of a partner or retained consultant devoted to the project is charged at an assigned billing rate.

**1.2** The 40 percent employee benefit factor is used for work performed by personnel assigned to offices in the United States. For work performed by personnel in our offices in other countries, it will vary depending on the employee benefits paid in the particular location.

**1.3** When outside the United States, employees' and partners' total direct salary cost will be increased by the premium customarily paid by other organizations for work at that location.

**1.4** Time spent in either local or inter-city travel, when travel is in the interest of the work, will be charged for in accordance with the foregoing schedule; when traveling by public carrier, a maximum charge of eight hours per day will be made.

### **2.0 EQUIPMENT CHARGES**

**2.1** Computer control of project costs will be billed at a rate of \$1.25 per each \$50 of job charges or fraction thereof.

**2.2** Other Dames & Moore equipment, if used, will be billed at the rates noted in the Appendix.

### **3.0 OTHER SERVICES AND SUPPLIES**

**3.1** Charges for services, equipment and facilities not furnished directly by Dames & Moore, and any unusual items of expense not customarily incurred in our normal operations, are computed as follows:

**3.1.1** Cost plus 10 percent includes shipping charges, subsistence, transportation, printing and reproduction, long distance communication, miscellaneous supplies and rentals.

**3.1.2** Cost plus 15 percent includes surveying services, land drilling equipment, construction equipment, testing laboratories, contract labor.

**3.1.3** Cost plus 25 percent includes aircraft, watercraft, helicopter and marine drilling equipment and operation.

SCHEDULE OF CHARGES – APPENDIX

**Dames & Moore**

EQUIPMENT

**AUTOMOTIVE**

Vehicle, per hour (maximum of 8 hours per day) . . . . .	\$ 4.00
Mileage, per mile . . . . .	\$ .25

**SOIL**

Soil sampling and compaction control equipment, per shift hour . . . . .	\$ 5.00
Soil sample rings and containers, per sample . . . . .	\$ 5.00

**LABORATORY**

Soil, water and biologic testing equipment – per employee, per hour . . . . .	\$ 10.00
Dynamic Testing Equipment will be quoted as required	

**DIVING**

SCUBA diving, per diver, per day . . . . .	\$100.00
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**REPORT PREPARATION**

Word Processing Equipment, per hour . . . . .	\$ 10.00
In-House Reproduction, per sheet . . . . .	\$ .10

**ENGINEERING COMPUTER SERVICES**

The use of Dames & Moore's in-house computer facilities will be charged in accordance with the "Engineering Computer Applications Billing Schedule" (attached). Computer time and other services provided by outside vendors will be charged at cost plus 15%. Terminals, plotters, forms, and computer supplies will be charged at cost plus 15%.

**FIELD**

Because of the varied nature of equipment, location and use, these rates will be quoted as required.

**Project:** Subsurface Gasoline Leak Cleanups, Automotive Service Centers  
**Client:** J.C. Penney  
**Location:** San Jose and San Mateo, California

Dames & Moore was retained to evaluate the extent of subsurface gasoline leaks at three South Bay sites. At one site, eighteen observation wells were installed and monitored on a regular basis during a period of three years. We designed an interceptor trench system which fed into a sump equipped with a skimmer pump to remove gasoline floating on the water surface. The system was constructed by IT Corporation under Dames & Moore supervision. An interceptor trench is under construction at the second site, and a vapor recovery system is being evaluated at the third.

**Project:** Subsurface Solvent Tank Leak Investigation and Groundwater Cleanup, Semiconductor Manufacturing Facility  
**Client:** Confidential  
**Location:** Santa Clara, California

Dames & Moore is performing a phased groundwater investigation for a semiconductor manufacturing facility with a known subsurface solvent tank leak. Work involves vertical and lateral plume definition by means of observation well installation, groundwater sampling, and aquifer testing. The potential for off-site migration is being assessed in conjunction with the impact of solvents originating from adjacent sites. Dames & Moore designed and supervised the installation of an extraction well system. The carbon treatment portion of the system was installed by IT Corporation.

**Project:** Remedial Investigation and Aquifer Restorations, Industrial  
Landfill  
**Client:** Bonzi  
**Location:** Central California

Dames & Moore has been retained to conduct multidisciplinary site investigations at an industrial landfill in central California. Community concern regarding the project is high. The landfill is located in an area of significant groundwater fluctuation and degradation of groundwater quality has been observed onsite. Dames & Moore's activities will include groundwater program design and implementation, investigation of site hydrogeology and river-aquifer interactions, air and soil gas monitoring, leachate monitoring, evaluation of possible groundwater contamination and contaminant transport. Evaluation of aquifer restoration technologies and conceptual design of the cleanup alternatives are included.

**Project:** Phased Subsurface Contamination Assessment - Agricultural  
Chemicals Plant  
**Client:** Confidential  
**Location:** San Francisco Bay Area

Dames & Moore has been conducting an extensive subsurface contamination assessment program at this site since 1979. The current phase of work is a Groundwater Assessment Plan developed under the facility's RCRA monitoring program in response to EPA and RWQCB requirements. The plan will assess the extent of potential off-site migration, including discharge from the shallow water table zone into a creek which borders the facility. The final phase of the assessment will be an engineering feasibility study for remedial measures.

**Project:** Phased Hydrogeologic Investigation, Electronics Research and Development Facility  
**Client:** Confidential  
**Location:** Palo Alto, California

Dames & Moore is conducting a phased hydrogeologic investigation at an electronics research and development facility as a result of a subsurface solvent tank leak. The tank was excavated in 1981; the facility implemented an interim groundwater pumping and treatment program in January 1982. Dames & Moore has investigated site hydrogeology through installation and sampling of twenty-four observation wells, evaluation of creek water quality, and contaminant transport assessment. The study results will form the basis for an evaluation of remedial alternatives for the final site cleanup program.

**Project:** Remedial Investigation/Feasibility Study  
**Client:** American Forest Products  
**Location:** Dinkey Creek, Martell, Forest Hill, California

Several of the Client's facilities were inspected by the State Department of Health Services and were issued notices of violations. Three of these sites are on the State Superfund list. Subsurface investigations and feasibility studies were conducted. Remedial action programs have been implemented as well as hazardous waste management plans to reduce site contamination. Remediation, involving removal of PCP and TCP contaminated soils has been completed at Dinkey Creek. We also successfully designed and implemented a remedial action program whereby levels of PCP, TCP and Dioxin were encapsulated onsite at Forest Hill. Both of these sites have now been delisted.

# Curriculum Vitae

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BRUCE SCARBROUGH

Title: Project Geologist

Expertise: Geology  
Hydrogeology  
Environmental Chemistry

Experience  
With Firm: Project Geologist

- Managed project involving preparation of Feasibility Study and Remedial Action Plan for mitigating extensive subsurface release of diesel fuel at lumber remanufacturing facility in Stockton, California.
- Managed project involving preparation of Feasibility Study and Remedial Action Plan for Mitigating PCB contamination at California State Superfund Site in Salinas, California. Project involved negotiations with DOHS on behalf of private sector client.
- Managed several environmental site assessment projects for Northern California properties to support real estate transactions.
- Prepared Remedial Investigation (RI) Work Plan for California Superfund Site involving organic solvent groundwater contamination in San Leandro, California.

Staff Geologist

- Directed field investigation of acid sludge surface impoundments at Bay Area refinery. Involved installation of borings and monitoring wells in surface impoundment.
- On-site coordinator for RI contract at Carlstadt, New Jersey Superfund site. Involved supervision of geophysical surveys (EM, resistivity soundings, and

DAMES & MOORE

Geologist  
Lee Oil Producers, Houston, Texas

- Developed and reviewed oil and gas prospects within the Michigan Basin with primary emphasis on Niagaran pinnacle reef reservoirs. Responsible for integrating and interpreting both geologic and geophysical data for prospect development. Assisted landman in securing mineral leases.

Academic Background: M.S., 1983, Geology, Utah State University  
B.S., 1981, Geology, University of Georgia

Citizenship: United States

Countries Worked In: United States

Language Proficiency: English, Farsi (conversational)

# Curriculum Vitae

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DAVID M. KLIMBERG

**TITLE** Associate/Group Leader

**EXPERTISE** Hazardous Waste Management, Geology, Hydrogeology, Geotechnical Engineering

**EXPERIENCE WITH FIRM** Manages Northern California Geoscience/Waste Management Group. Responsibilities include: group planning, budgeting and control; project management, staff supervision and development; marketing.

**Recent Project Experience:**

- o Project Manager of a long-term hazardous waste remedial investigation/feasibility study (RI/FS) project for a northern California wood manufacturing company to bring its three facilities on the California Superfund list into compliance with federal and state laws. The scope of work includes subsurface contamination investigations, groundwater monitoring, remedial action planning, negotiations with the California Department of Health Services and Regional Water Quality Control Board, and participation in public hearings.
- o Project Manager on a groundwater and air monitoring program for two municipal landfills in Kings County, California. The program objective is to comply with "Subchapter 15" and solid waste assessment test ("Calderon") regulations. The scope of work includes design and installation of groundwater and air monitoring wells, design of sampling and analyses programs, evaluation of groundwater flow, groundwater contamination and air quality, and preparation of special reports to the California Regional Water Quality Control Board and Air Pollution Control District.
- o Principal investigator on several environmental assessments of property in California to inform land developers, sellers and lenders of potential contamination from post-site activities. The scope of services included comprehensive search and review of site history and areal photography, site reconnaissance, geophysical surveys, and subsurface sampling and analysis.

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- Senior Staff Engineer, Woodward-Clyde Consultants (1981-1983)
- o Conducted remedial investigation and remedial action project at an abandoned Johns-Manville siding manufacturing facility in Redwood City contaminated with asbestos.
  - o Conducted remedial investigation and remedial action project at a computer chip manufacturing facility in California's Silicon Valley, contaminated with organic solvents.
  - o Conducted a site contamination investigation at an abandoned leather tanning facility in San Francisco.

**ACADEMIC  
BACKGROUND**

M.S. (1981), Geological Engineering, Mackey School of Mines, University of Nevada, Reno.  
B.S. (1979), Geology/Engineering Geology, University of California, Los Angeles.

**PROFESSIONAL  
REGISTRATION**

Registered Geologist, California

**CITIZENSHIP**

United States

**LANGUAGE  
PROFICIENCY**

English

**PROFESSIONAL  
AFFILIATIONS**

Association of Engineering Geologists  
American Society of Civil Engineers  
Sigma Xi

# Curriculum Vitae

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ERIC G. TERHORST

**TITLE** Project Engineer

**EXPERTISE:** Chemical Engineering  
Groundwater Remediation Hazardous Material Management  
Regulatory Compliance

**EXPERIENCE** Joined firm in 1988. Provides technical support to and management of geoscience and hazardous waste related to projects and computer modeling capabilities for surface and groundwater investigations.

- Feasibility study for Koppers Feather River Plant Superfund Site.
- Site characterization and groundwater remediation for industrial clients.
- Risk assessment and environmental auditing.
- Hazardous material and waste management.

**PAST EXPERIENCE** Seven years experience in environmental management.

Chemical Engineer, Xidex Corporation, Santa Clara, CA 1985-88.

- Design and implementation of groundwater cleanup activities.
- Removal and disposal of soils and tanks. Installation of new tanks.
- Installation of permitted hazardous material drum storage facilities.
- Air quality permitting for major facilities.
- Preparation of Hazardous Material Management Plans, Business Plans and SARA Title III Form R.
- Interaction with Regional Water Quality Control Board, Bay Area Air Quality Management District, Fire Department, California Dept. of Health Services, and U.S. Environmental Protection Agency.

Chemical Engineer, Leland D. Attaway & Associates, 1982-85.

Principal Engineer of a consulting team. Projects included Health Risk Assessment for large built Coast Refinery, groundwater site investigations, and research on potential for PCB Diodegradation.

Waste Treatment Engineer, Syntex Corp. 1979.

Evaluated effect of RCRA on company's waste handling practices.

# Curriculum Vitae

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CHENG-HSIEN LAI

Title Senior Engineer

Expertise Project Management  
Ground Water and Surface Water Modeling

Experience Berkeley Hydrotechnique, Inc.

Responsibilities included project development, development and application of new techniques for the firm's consulting services ranging from ground water modeling, investigations of hazardous chemical contamination in ground water systems, characterization and assessment of low- and high-level radioactive waste disposal sites, design and evaluation of field tests for cleanup of ground water contamination, and evaluation of geothermal and petroleum resources.

- o Principal for development of a numerical code for analysis of radionuclide transport in variably saturated geologic median related to the proposed high-level radioactive waste disposal at the Nevada Test Site. The code considers the coupled, simultaneous flow of water, gas and heat with limited chemical kinetics, and the transport of radionuclides. Responsibilities include technical proposal preparation, development and validation of the code, report preparation and presentation.
- o Responsible for design of chamber test for the proposed high-level radioactive waste disposal at the Hanford Basalt Site. The program objectives were to design a chamber test for a large scale measurement of the hydrologic properties, analysis of the size of the representative elementary volume, evaluation of the effects of excavation of underground openings on the hydrologic properties. Responsibilities include analysis and integration of available field data, assessment of effects of near field phenomena such as dissolved gas, temperature, and underground opening on the design, conceptualization of ground water systems, modeling of a large scale ground water flow system required for the design, and presentation.
- o Senior Project Engineer for discrete fracture flow analyses for sedimentary rocks proposed for low- and high-level radioactive disposal. Responsibilities included development and modification of a numerical code required for discrete fracture flow modeling, data analysis, and report writing.

DAMES & MOORE

- o Developed a numerical method consisting of a combination of the second-order Godunov scheme and an operator splitting technique. The method can significantly reduce numerical diffusion errors and give no oscillations near fronts for convection dominated transport problems. The methods have been incorporated into a numerical code to investigate the development of the Ellidar geothermal field in Iceland.

University of California, Berkeley, California

- o Conducted laboratory research on the identification and evaluation of reservoir minerals and their relationship to fluid flow. Application of this work was directed at evaluation of effects of clay minerals on enhanced oil recovery techniques.

Academic  
Background

Ph.D. Reservoir Engineering, Surface Chemistry (1985)  
University of California, Berkeley, California  
M.S. Petroleum Engineering (1981) University of California,  
Berkeley, California  
B.S. Petroleum Engineering (1974) National Cheng-Kung  
University, Taiwan, R.O.C.

Countries  
Worked In

United States  
Taiwan, R.O.C.